



Sandia Serious Gaming Consortium presents **Dr. Jeff Orkin**

Collective Artificial Intelligence: Simulated Role-Playing from Crowdsourced Data

Monday, June 17th, 2013

Sandia-NM: 11:00 a-12:00 p MNT, 895 Auditorium

Sandia-CA: 10:00 a-11:00 a PST, 940 Auditorium

Abstract

While advances in graphics support incredible freedom to interact physically in videogames and simulations, social interaction and dialogue continues to be limited to hand-crafted, rigidly scripted, multiple choice interactions due to limitations of current approaches to authoring content, as well as limitations of human imagination. The convergence of advances in connectivity, storage, and processing power is bringing people together in ways never before possible, amplifying the authoring power of individuals by harnessing the creativity and productivity of the crowd, revolutionizing how we create simulations, and what simulations we can create. By embracing data-driven approaches, and capitalizing on the creativity of the crowd, authoring bottlenecks can be overcome, taking a step toward realizing simulations that robustly support fluid, unscripted social interaction and dialogue. Doing so requires rethinking both technology and division of labor in media production.

This talk introduces Collective Artificial Intelligence (CAI), which simulates unscripted social role-playing from data contributed by many humans, mined for inter-related patterns. The CAI process combines crowdsourcing, pattern discovery, and case-based planning. Content creation is crowdsourced by recording role-players online. Browser-based tools allow non-experts to annotate data, organizing content into a hierarchical narrative structure. Patterns discovered from data power a novel system combining plan recognition with case-based planning. The combination of this process and structure produces a new medium, which exploits a massive corpus to realize characters who interact and converse with humans. This medium enables new experiences in videogames, as well as new classes of training simulations, therapeutic applications, and social robots.

As a proof of concept, a CAI system has been evaluated by recording over 10,000 performances in The Restaurant Game, automating an AI-controlled waitress who interacts in the world, and converses with a human via text or speech. Quantitative results demonstrate that CAI supports open-ended interaction with humans.

Bio

Jeff Orkin is an independent game developer and AI researcher in Cambridge, MA. Jeff recently completed a PhD in the Cognitive Machines group at the MIT Media Lab. Prior to MIT, Jeff spent a decade leading the development of award-winning Artificial Intelligence in the videogame industry, and is widely recognized as a leader in the field of AI for games. Jeff regularly speaks at academic and industry conferences, has published 25+ articles about AI, and has served as an Associate Editor of IEEE Transactions on Computational Intelligence & AI in Games. Jeff holds an M.S. in Computer Science from the University of Washington, and a B.S. in Computer Science from Tufts University, with a minor in Studio Art.

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